

Only the *Lanice conchilega* community, because of the high number of bivalve, possibly functions as feeding grounds for the Common Scoter. The spatial distribution of the bivalves in the *Lanice conchilega* community and the wintering Common Scoters will be compared.

Diatom assemblages from herbarium macrophytes and old samples – potential for historical limnology and studies from Flanders (Belgium)

LUC DENYS

Departement Biologie, Universiteit Antwerpen, RUCA, Groenenborgerlaan 171, B-2020 Antwerpen, Belgium (correspondence) & Instituut voor Natuurbehoud, Kliniekstraat 25, B-1070 Brussel, Belgium

Herbarium material of aquatic macrophytes and old limnological samples provide the opportunity to obtain precisely dated samples of epiphytic, planktonic or sedimentary diatom assemblages from the more recent past. These allow an accurate assessment of former limnological conditions at specific sites, in particular types of surface waters or associated to certain macrophytes, and even in entire regions. Inferences made from diatom assemblage composition may range from species abundance and diversity estimates to a reliable reconstruction of important parameters (e.g. pH, nutrient concentrations, salinity) by the use of indicator values or calibration techniques. Such information can be used to determine appropriate goals for management and restoration (pre-deterioration conditions), to track temporal changes by comparison with more recent data and relate these to possible external influences (e.g. various forms of pollution), or to evaluate monitoring data in a broader time perspective.

In many cases, the use of old samples may not allow to generate time series of similar length and resolution as the more commonly applied diatom analysis of sediment cores. This technique, however, does provide access to the history of waters that do not have a suitable sediment record (e.g. because of dredging or sediment disturbance), avoids the problems often encountered in dating core levels accurately, and – with comparable or less effort – can be applied to a score of waters from a cer-

tain area. Also, it may be used to corroborate conclusions derived from sediment core analyses. Furthermore, the shorter time averaging of environmental conditions by epiphyton or plankton compared to sediment assemblages can be used advantageously to study short-lived or abruptly occurring phenomena. Limitations are, of course, related to the availability of suitable samples, the fact that most samples post-date c. 1850, and the reliability or detail of the information on place and date of collection. Moreover, variability caused by substrate and small-scale spatial differences in ecological conditions may be difficult to account for. For these reasons, it is recommendable to examine multiple samples of different nature (epiphyton of different plant species, sediment from between the roots,...) from a given site.

So far, old samples and herbarium material of aquatic plants have been used for a number of diatom investigations on lentic waters in Flanders. These include a number of case studies on specific water bodies, e.g. the Blankaart reservoir (Woumen), pools in the "Fonteintjes" (Zeebrugge), a survey of pools in the region of Kalmthout prior to 1945, and a 'typological' study of standing waters throughout the entire Flemish region. In order to facilitate the selection of suitable material for such studies, an inventory was made of some of the most important herbarium and sample collections held by Belgian universities and research institutes (including the herbaria BR, GENT, LV, BRVU, ANTW and that of UCL, and the collections of Van Oye at RUG and RUCA, and of Adam & Goossens at KBIN).
